

CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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Information

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1. The organization of the Soviet armament industry, during the war and until about June 1947, was similar to that of the syndicates and special commissions of wartime Germany. Representatives were appointed to specific industrial branches; Malenkov headed the aviation armament industry, and Molotov headed the production of tanks. In his capacity as highest authority of the aviation armament industry, Malenkov founded the Radar Committee, which was in charge of the entire development of radar equipment in the USSR. Vice Admiral Berg, one of the leading minds of the USSR, a member of the Academy of Sciences, was chief of the Department of Science of the Radar Committee, and was in charge of the organization of radar technics. Berg was previously director of the Leningrad Technical Institute, one of the best technical schools in the USSR. Before the war, Berg had occasionally visited Germany to purchase large quantities of equipment. Naval Captain Shokin (fnu) was Berg's deputy. He was the organizer and known to be the power behind the radar industry, while Berg was more the scientist. Shokin was very familiar with radar tactics and the problems pertaining to such tactics.
2. When the wartime organization was converted to peacetime production, the Soviet signal equipment industry was turned over to the Ministry for the Communications Equipment Industry; this was some time after July 1947. The ministry included five chief directorates, of which No. 2 controlled tube production and No. 5 probably the development of electrical parts for rockets. These departments worked primarily on planning and economic problems. Special commissions were assigned to work on scientific problems. The Chief Directorate for the Production of Tubes and its subordinate plants employed about 50,000 people.

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25 YEAR RE-REVIEW

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3. After the reorganization in July 1947, Admiral Berg was assigned as Chief of Institute 108 in Moscow, which became the central office for the entire radar development. Shokin was later transferred to the ministry. Committee No. 3 at the ministry was composed of personnel of the former Radar Committee. An Institute 104 also took an important part in radar development.

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4. Institute Nos. 160 and 20 were the two initial institutes of the Ministry for the Communications Equipment Industry. They were the only two institutes working in this field. Until 1947/1948 the number of such institutes was increased, to about 25. Institute 20, located in the eastern portion of Moscow, near Elektrozavodskaya, was in charge of the entire field of wire communications, and decimeter techniques. After the war, this institute started to work on centimeter-wave communication techniques, e. g., on an eight-channel system with pulse position modulation on 14 to 15 cm waves. This development, which had already been initiated by the Oberspreewerk, was continued at Fryazino until August 1947, when the project was turned over to Institute 20 and was completed there. After one or two years, the project was awarded the Stalin Prize, plus a bonus of 100,000 Ost Marks.

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5. An institute under the direction of Lieutenant General Belyakov worked on navigation problems. The institute, located at Tushino airfield, was comparable to the German Experimental Institute for Aviation (DVL). Belyakov (fnu) served as navigator on the flight in 1936 from the USSR to America, via the North Pole. Belyakov visited the Oberspreewerk in Berlin/Oberschoeneweide during May 1946, and showed interest in the development of a long-range navigation system based on the hyperbola method, which, at a range of 3,000 km, was to effect an accuracy of five kilometers. Dr. Kotovski and Dr. Kaufman, who had worked on this project at the Oberspreewerk before their deportation to Leningrad in October 1946, were put to work at the Svetlana Plant on the development of measuring instruments. Later they worked on the development of instruments for long-range navigation. In May 1946, Belyakov showed specific interest in a short-range navigation system for 300 to 300 km ranges (sic), with an accuracy of about 50 meters.

It had also been projected at the Oberspreewerk, but had never reached the laboratory-research stage.

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6. An institute with some German engineers, established by the MGB, was primarily engaged in direction-finding problems. This institute was allegedly located at the next-to-last railroad station of the suburban railroad line running parallel to the Moscow-Gorkiy railroad line. A major project, which was worked on until 1949, was the so-called "Wullenweber" direction-finding set. This was a German development which had been worked on at the Oberspreewerk in 1946. This set operated with a larger number of MUSA-type antennas, with either optical or acoustical direction-finding. It was designed for a wave range of 15 to about 90 meters, and achieved an accuracy of about 1°. A signal period of not more than 10 micro seconds was required in order to detect short-time telegrams (Kurzzeittelegramme) clearly. The next project of this institute was a direction-finding set for a wave range of 7.5 to 15 meters, which worked on the same principles. The set, constructed by Soviet engineers, allegedly was completed, and was said to operate with an accuracy of 2°. After 1950, this institute worked on problems connected with direction-finding at a wave range of 3 cm to 7 meters. The sets, operating at a wave range of 3 to 10 cm were untuned or aperiodic detector receivers with parabolic reflectors; the sets, which were to operate at a somewhat longer wave, were superheterodyne receivers with disc tubes (Scheibenroehren). These operated at wave ranges up to 40 cm with parabolic mirrors, and at more than 40 cm with other antennas. These sets apparently had a very high sensitivity, e.g., at a wave length of 40 cm a sensitivity of 4 KTO was achieved. Another project in the field of meter-wave sets was the development of a small, pocket transmitter which, placed at a target, could serve as a guiding beam for approaching aircraft.

7. The German engineers learned about the activities of the Buschbeck Group in Kuntsevo, at Serebryanny Bor; they were consulted by this group on tube problems. In 1949, Kaslov (fnu), former Deputy Minister for the Communications Equipment Industry, was chief of this group. The questions asked by this group indicated that, in late 1947, they had worked intensively on the V-2 rocket. Furthermore it was learned that the central institute for V-2s in Moscow burned down in 1948/1949. This institute had worked on the problems of the air frame and control system of the V-2, while a group of scientists detached to Monino worked with Buschbeck on the electrical units of the rocket. In early

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1949, Kaslow was put in charge of the reconstruction of the burned institute; the reconstruction work was accomplished quickly. The new building allegedly was completed in late 1949. At the end of 1949, the Buschbeck Group was transferred from Monino to Moscow,

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8. Measuring techniques, especially oscillographs, were worked on intensively at Institutes 505, and 508. A large plant for the production of meddo-type sets had been constructed in Saratov. This plant allegedly had a work force of 20,000 people.

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9. An institute in Gorkiy worked on the development of measuring instruments. In the beginning, this institute was also engaged in the field of instrument landing systems. The development of measuring instruments was given high priority and, after 1951, all measuring instruments required for the entire field of high frequency technics became available gradually. The quality of these instruments was good. Of the measuring sets received from East Germany, the sets from Erfurt were said to be good; after 1948, the 3-cm sets received from the Oberspreewerk became worse than the ones produced in the USSR. Another institute at Gorkiy produced parts for communications equipment which were of an excellent quality, but comparatively large. The resistances and metallized-paper condensers were about the size of the German A-4 type karbowid (sic) resistances.

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10. there were no other tube plants in the USSR besides the Svetlana Plant and the plants at Moscow, Fryazino, Novosibirsk, and Tashkent. A new plant possibly was under construction in the vicinity of Kaliningrad, because German engineers who had been deported from Halle were working in this area. One Wedemayer, (fnu), was the chief of this German group. The production of the plant at Saratov was probably restricted to the tubes required for the meddo-type sets. Larger scientific institutes existed only at the plant at Fryazino and at the Svetlana Plant. During the war some of the development engineers at Fryazino had worked in Tashkent. The Tashkent Institute, which had been established there during the war, has probably been closed. A small developmental department for metal-ceramic tubes was located in Novosibirsk. Until 1952, there were still serious difficulties connected with the production of these tubes.

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11. acceleration-proof tubes when, in early 1950, Institute 160 was ordered to prepare plans for the construction of special machine tools for the production of such tubes. No great importance was attached to this project, and it was dropped before the construction of models had started.

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12. Two or three months before the Korean War started, the development program was converted, and long-term projects were canceled, especially in the field of cm and mm sets.

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Among other fields, priority was given to the development of the decimeter technic.

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13. a Soviet engineer had successfully experimented with the wireless transmission of electric power. He laid a power line, several hundred meters long, under a road; it was fed with 10,000 kc, and motor vehicles driving on this road were supplied power to drive the engine by means of inductive coupling.

Institute 160

14. The scientific department containing German engineers was the most important department of the institute. The department for the production of models was engaged in series production of new types. The OKBM department was in charge of the development of machines for the production of tubes, and also for the plant installations of all tube plants in the USSR.

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Especially the electric units of the machines developed here were of an extremely poor quality. However, the

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Soviets were not depending on this department, since there were still large stocks of American and dismantled German machines, including numerous Bruckners automatics, available. These stocks were enough to cover the requirements of all plants. Until 1952, there were still several dismantled machines at Institute 160 which had not been reinstalled. Most of these machines were serviceable.

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15. The laboratories for the development of magnetron tubes worked independently of one another. Jamming magnetrons were developed in a laboratory under the direction of Zuzmanovskiy (fnu). In the beginning, this program was based on records of the Telefunken firm which had been captured at Liegnitz. However, this laboratory in particular also worked on numerous projects developed by its own personnel. A magnetron for a capacity of 600 watts, which could be tuned continuously at a wave range from 9 to 12 cm, was already in quantity production. Other magnetrons for wave ranges of up to 3 cm were planned. While in the very beginning a frequency range of 3 to 4 megacycles was considered too broad for the 600-watt magnetron, a frequency range of 100 megacycles was later to be achieved according to a new method. An impulse magnetron for wave ranges of 50 to 140 cm was developed during the last year. In addition to the enlargement of the known types of tubes, Zuzmanovskiy had some new ideas for the construction of such tubes. He intended to construct a tube which was to operate on the principle of many two-slot magnetrons, arranged parallel to one another in one bulb.
16. The magneto laboratory of Fedoseyev worked primarily on the redevelopment of impulse magnetrons, of which a 3-cm magnetron for 400 to 500 kilowatts and a 10 cm magnetron for an impulse capacity of 1 mw were especially noteworthy.
17. There were no Germans employed in the laboratory for gas discharge tubes. The activities of this laboratory included the development of a well-functioning hydrogen thyratron for a very high capacity. The laboratory for pulse generators developed sets for capacities in the range of 1 mw. In the field of impulse generating sets, it was endeavored to omit pulse timing (frequency modulation) (Laufzeitketten). The tendency to develop larger high-vacuum tubes was clearly determined.
18. Priority was given to the development of modulator tubes. The tube was improved, in as much as the capacity was increased about four times, and a high-tension-proof quality was achieved. An impulse modulator tube for 35 kilovolts, developed at the institute, was put into production about 1950. The tube was equipped with a good oxide cathode and had good tension-proof qualities. Another tube for 45 kilovolts and a pulse power of 1.5 mw was fitted with a good cathode, but otherwise was of poor quality; this tube was called Samovar by the German scientists.
19. The first secret project developed in the department for television tubes was blue-writing tubes. the Soviets took great interest in this development.
20. In the field of klystrons, the Soviets were greatly interested in a set which could be widely tuned, preferably continuously at a wave range of 2.5 to 12 cm. The activities included research in the fields of external mechanical tuning, thermal tuning, and internal tuning. In the field of detectors, the activities were restricted to the production of silicon detectors, which was initiated in accordance with the old German method. Work on germanium diodes and transistors, which had not been started before 1951, was only slightly successful. There was no basic research work done in the field of semi-conductors. A highly-qualified young Soviet engineer from the detector laboratory was assigned to the Ministry for several months, to work with a commission on scientific problems in the field of transistor development. The centimeter laboratory worked only on measuring and testing instruments required for the activities of the cm-tube laboratory. The work on receiver tubes did not receive special emphasis. The testing field was insufficiently equipped for any effective work. In early 1952, it was planned to enlarge considerably the testing field, in order to obtain satisfactory results and thus be able to control the quality of all tubes produced in the USSR. These activities also included the testing of receiver tubes and small transmitter tubes. All complaints about large, water-cooled transmitter

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tubes were directed to the Chief of the Test Section. These tubes were tested and controlled at the transmitter stations where they were in operation. The development of the largest, water-cooled transmitter tubes was kept secret from the Germans. There were four pumping stands in operation at the laboratory. The equipment of the glass works was rather poor.

21. The development of linear acceleration tubes initiated at the Oberspreewerk was not continued at Institute 160. Dr. Babat, the well-known scientist who worked as a guest at the institute, was the only one who was interested in the problems of maximum tension. Dr. Babat worked theoretically in the development of X-ray tubes for one mv.

22. Prior to 1949, the most important [] projects were available at the institute, two years before they were published []. After 1950, such information was no longer received.

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23. During the last months that the German engineers were in the USSR, it was noticed that the jamming of Western radio broadcasts had been increased. Even programs in German from the London station, which were previously quite understandable, were jammed.

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26. The following is the organizational setup of Institute No. 160 in Moscow as well as the leading personnel of the institute:

a. Plant director:

Prior to October 1947: Zakharov. (fnu)
After October 1947 : Goltsov. (fnu)

Chief Engineer: Zorokin (fnu); in November 1951, he was transferred to the Ministry as head of the Chief Directorate for the Production of Tubes.

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b. Scientific Department (status 1950/1951)

Chief:

Prior to Summer 1948: Zuzmanovskiy (fnu)
 After Summer 1948: Devyatkov

c. Theoretical Department:

Chief: Lukoshkov. (fnu)
 German engineers: Dr. Karl Steimel
 Dr. Gerhard Dobrack (or Dobrach)
 Dr. Hans Rosenstein
 Dr. Gerhard Hagen
 Dr. Gerhard (fnu)

d. Magnetron and Transmitter Tubes: The individual laboratories worked independently of one another.

Magnetron Laboratory: (primarily working with jamming magnetrons)

Chief: Zuzmanovskiy. (fnu)
 German engineers: Engineer Karl Gromaides, and
 Mechanic Helmuth Stolle

Magnetron Laboratory: (primarily working on the redevelopment of American sets)

Chief: Fedoseyev. (fnu)

Laboratory for gas-filled tubes:

Chief: Miss Vogelsson. (fnu), Soviet
 No German personnel in this laboratory

Laboratory for the construction of impulse sets:

Chief: Stroganov (fnu)

e. Klystron Tubes and Detector Department:

Chief: A Soviet engineer

Laboratory for Klystron sets:

Chief: Fishbeyn. (fnu), Soviet
 German engineers: Dr. Hans Tropper
 Graduate Engineer Eitel Spiegel
 Graduate Engineer Horst Gerlach
 Engineer Walter Ewald
 Graduate Engineer Wilhelm Wiener

Laboratory for Klystron tubes:

Chief: Mishkin. (fnu)
 German engineer: Engineer Willi Siems

Laboratory for detectors:

Soviet Chief: Krasilov. (fnu)
 German engineers: Dr. Emil Schloshmilch
 Engineer Hellwig. (fnu)

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f. Radio Physics

Chief: A Soviet engineer

General laboratory for the construction of instruments:

Chief: A Soviet engineer

German engineers: Engineer Wilhelm Grimm
 Graduate Engineer Herbert Junker
 Engineer Alois Fleischer
 Graduate Engineer Theodor Pederzani

Laboratory for centimeter sets:

Chief: Strutinsky, (fnu)

German personnel Dr. Werner Foggy
 Engineer Ernst von Hagen
 Engineer Albert Thurley
 Technician Munthe, (fnu)

g. Television Tubes: (130)

Chief: Astrin, (fnu)

After 1949 Shutak, (fnu)

German engineer: Dr. Werner Kluge

Television transmitter tubes:

Chief: Artemyev, (fnu)

German engineers: Graduate Engineer Hass, (fnu)
 Graduate Engineer Walter Dirbach

Oscillograph and television receiver tubes:

Chief: Tarasov, (fnu)

German engineers: Dr. Physics Helmut Klang
 Graduate Engineer Werner Fiedler

Blue-writing tubes (Blauschrifteroehren):

Chief: Astrin, (fnu)

German engineer: Dr. Juergen Rottgardt

Measuring and Testing equipment:

Chief: Lebedev, (fnu)

German engineers: Baehr, (fnu)
 Rohwedder, (fnu)
 Engineer Walter Gutzke

Illuminating agents:

Chief: Grigoryev, (fnu)

German engineers: Dr. Physics Fritz Michels
 Graduate Chemist Ilse Thurley (nee Mueller)

Secret department:

Chief: Astrin, (fnu)

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h. Receiver Tubes:

Soviet Chief: Ratenberg, (fnu)
 German engineers: Professor Dr. Gerhard Mie
 Engineer Heinrich Krueger

i. Chemical Department:

Soviet Chief: Medlin, (fnu)
 Dr. Hans Richter
 Dr. Ernst Schaaf
 Albert Grove

j. Measuring Department:

Test field for live endurance: Soviet Chief: Seebode, (fnu)
 Probe test field: German engineers: Dr. Theodor Pedersani
 (prior to 1947)
 Engineer Zeegenhagen, (fnu)

Mechanical tests and climatic experiments:

Chief: Avners, (fnu)
 German engineers: Engineer Erwin Schulze and
 Engineer Hans Siems

k. Designing Office:

German engineers: Hans Zander
 Bohne, (fnu)
 Malchow, (fnu). A group of designers was attached to
 each of the three engineers

l. Workshops:

German engineers: Schneider, (fnu)
 Engineer Otto Schmitt

m. Production Department for Models

Engineer Rothenburg, (fnu), was the only German working in this department.

Glass works:

German engineers: Gerhard Riedel
 Graduate Engineer Ludwig Huebner

n. OKBM

German engineers: Palme, (fnu)
 Schulz, (fnu)
 Engineer Ruenther Taubert
 John, (fnu)

o. Administration

Soviet Chief after mid-1947: Ginzburg, (fnu)



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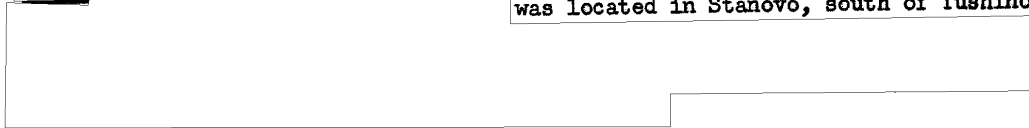



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1.  Comment. Institute 140  was located in Stanovo, south of Tushino,

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2.  Comment. This contradicts the information given in paragraph 8 of the present report.

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